Simplifying the Deployment and Operation of Future-Proof SD-WAN Services

Expereo leverages Enea's uCPE virtualization platform to deliver secure "branch office in a box" solutions to enterprises, ensuring flexibility in networking functions and custom applications along with remote management and updates to minimize operational costs.

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Enterprises of all sizes view the seamless integration of flexible, remote workplaces as a business imperative. Staffers need consistent, secure and reliable access to cloud-hosted applications and corporate data, whether they're working from home, on the road, at a branch office or at their headquarters.

Software-Defined Wide Area Networking (SD-WAN) has emerged as the technology of choice for virtual networking, maximizing the productivity of enterprises with multiple locations and a geographically-distributed workforce.

Enterprises need their WAN infrastructure to be future-proof. They expect to continually leverage best-in-class products from an expanding ecosystem of both hardware and software vendors. They need to automatically update individual functions as better solutions become available, whether from their existing vendors or others. And they expect to minimize both their capital and operational expenses (CAPEX and OPEX) for virtual networking across all their sites. Finally, with virtual networking across hundreds or thousands of remote nodes dramatically expanding the attack surface, it's critical that security be integrated throughout the network fabric.

First-generation SD-WAN installations failed to meet these needs. They were monolithic, single-vendor solutions that were fixed-function and that required a full rip-and-replace operation for updates. These solutions imposed significant limitations on the service providers delivering them, who were unable to customize the SD-WAN to meet the specific needs of individual

The Problem

IT executives at multinational enterprises in markets like manufacturing, shipping, logistics and services are generally well aware of the potential benefits of SD-WAN, which have been explained and discussed exhaustively over the past two or three years. So, what's deterring many of them from deploying the technology?

Many companies hesitate to adopt standard "first generation" SD-WAN products. These companies require multiple network and security services at their branch locations. They also want the ability to select best-in-class vendor solutions, with the flexibility to change them after deployment, while in addition installing and operating custom applications for their own specific use cases.

The Solution

Expereo, a network-independent service provider headquartered in the Netherlands, has solved this problem. They leveraged a universal Customer Premise Equipment (uCPE)-based virtualization platform from Enea to provide a "branch-in-a-box" solution available as a self-installed or Expereo-installed physical appliance.

Expereo's customers now have the flexibility to choose SD-WAN and security functions from an ever-increasing range of vendors, including VMware (VeloCloud), Zscaler, Palo Alto and others. Customer-specific applications can be installed on the same hardware. Expereo offers Secure Access Service Edge (SASE) cloud security, supporting a hybrid model with perimeter security on the appliance.
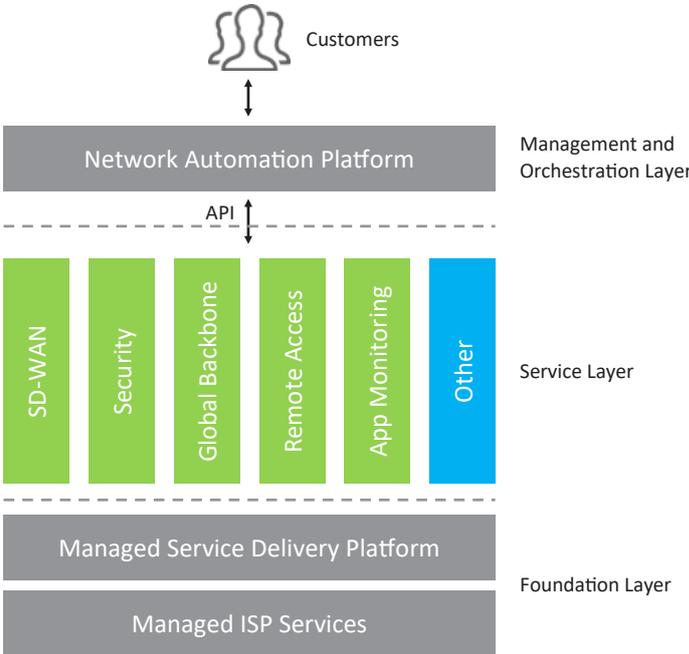
Benefits of Expereo's SD-WAN for Enterprise Customers

▸ **Flexibility** to deploy services from an expanding selection of industry-leading suppliers, with no vendor lock-in;

▸ Addition of **custom applications** for specific use cases;

▸ Guaranteed **future-proofing** through the ability to add, delete, replace or upgrade services after deployment;

▸ Comprehensive **cloud-based security**, optionally augmented by perimeter security on the appliance;

▸ Operational **efficiencies** that result from managing a single hardware platform with simplified processes;

▸ **OPEX-based** business model that maximizes ROI while minimizing TCO.

Customers

Network Automation Platform — Management and Orchestration Layer

API

SD-WAN | Security | Global Backbone | Remote Access | App Monitoring | Other — Service Layer

Managed Service Delivery Platform

Managed ISP Services — Foundation Layer

customers or to offer solutions optimized for specific markets.

Expereo's solution meets these needs of enterprises through a second-generation SD-WAN architecture.

Within the solution architecture, the **Foundation Layer** leverages the Enea Edge uCPE platform as a hypervisor to host virtualized functions and applications. Rather than using OpenStack to perform lifecycle management, Enea Edge uses NETCONF, resulting in smaller footprint requirements for cores, memory and storage. This enables the SD-WAN to be installed on lower-cost, lower-power hardware.

The **Service Layer** comprises the SD-WAN and security functions as well as customer-specific applications installed to support individual use cases. Thanks to the use of Enea Edge in the Foundation Layer, these functions and applications are deployed and managed remotely, minimizing the operational costs associated with each site.

The **Management and Orchestration Layer** performs all the necessary service automation and management functions. This allows full remote operation of the SD-WAN.

For maximum operational flexibility, Expereo's solution can be deployed either by the customer themselves or by a local partner.

The Dell VEP1400/4600 series is commonly used as the physical appliance, offering a wide range of models with different CPU, RAM and storage configurations which can be precisely matched to the requirements of specific customers.

Running all the networking and security functions, as well as any custom applications, on a single appliance reduces

hardware sprawl and minimizes the Total Cost of Ownership (TCO) for each site.

For customers who prefer the cloud-hosted option to a physical appliance, Expereo delivers SD-WAN as a service, providing the core benefits of SD-WAN while enabling secure direct internet access, SLA-backed connectivity and seamless extension of the WAN to cloud data centers and mobile users. The entire security stack required to secure customers' virtual networking traffic is included. For maximum flexibility, these security functions can be delivered either on-premise, running on the

physical appliance, as a Secure Access Service Edge (SASE) service hosted in the cloud, or in a hybrid configuration whereby cloud-hosted security services are complemented by perimeter-based functions on-premise.

Expereo leverages best-in-class security solutions from industry-leading vendors such as Zscaler, complementing its collaboration with SD-WAN and platform software vendors like Cato, Enea, Palo Alto and VMware (VeloCloud).

In addition to the networking and security functions that form

the core of SD-WAN, customer-specific applications can also be installed on the uCPE, either before or after deployment. A manufacturing company, for example, could install their own proprietary machine vision application for quality inspection and have it managed along with the rest of the SD-WAN system, rather than incurring the operational and capital overhead of a separate appliance.

For use cases where high availability and resiliency is essential, the solution architecture supports a redundant configuration with dual appliances, so that operations fail over seamlessly from the prime to the alternate in the event of a hardware or software failure, avoiding unplanned downtime.

As part of the Foundation Layer, the Enea Edge uCPE platform supports the remote installation, management, removal and replacement of the networking and security functions. This ensures that the SD-WAN is future-proof and eliminates the risk of vendor lock-in that impacted first-generation architectures.

A Proof of Concept (PoC) is offered to enable interested users to validate the solution against predefined objectives in their own live operational environment, before committing to a business engagement. The PoC is conducted by experienced Expereo engineers in cooperation with the customer's technical staff using a proven, structured process.

In summary, by leveraging Enea's uCPE virtualization platform along with SD-WAN and security functions from other industry-leading vendors, Expereo delivers a secure, future-proof virtual networking solution that enables cost-effective business transformation for enterprises worldwide.

About Expereo

Expereo is a rapidly-growing and network-independent service provider, delivering fully managed SD-WAN, SASE and Cloud Access services to its customers worldwide. Expereo is the trusted partner of 30% of Fortune 500 companies. For more information, visit https://www.expereo.com/.

About Enea

Headquartered in Stockholm, Sweden, Enea is a world-leading supplier of innovative software components for telecommunications and security. Focus areas are cloud-native, 5G-ready products for mobile core, network virtualization (such as Enea Edge) and traffic intelligence. For more information, visit https://www.enea.com/.

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